<110> Roche Diagnost⬤Operations, Inc.

<120> Optimised Protein Synthesis

<130> 21556

<140> PCT/EP03/013964
<141> 2003-12-09

<160> 57

<170> PatentIn Ver. 2.1

<210> 1
<211> 84
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer C

<400> 1
gaaattaata cgactcacta tagggagacc acaacggttt ccctctagaa ataattttgt 60
ttaactttaa gaaggagata tacc   84

<210> 2
<211> 71
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer D

<400> 2
caaaaaaccc ctcaagaccc gtttagaggc cccaagggggg ccgccagtg tgctgaattc 60
gccttttatt a   71

<210> 3
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A
      without hairpinloop

<400> 3
aggagatata ccatgactag caaaggagaa   30

<210> 4
<211> 42
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A
      Stem Length 4 bp

<400> 4
aggagatata ccatgactaa ttttagtact agcaaaggag aa   42

<210> 5

<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A
     Stem Length 5 bp

<400> 5
aggagatata ccatgactgt ttatacagta actagcaaag gagaa   45

<210> 6
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A
     Stem Length 6 bp

<400> 6
aggagatata ccatgactgg tcaattacca gtaactagca aaggagaa   48

<210> 7
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A
     Stem Length 7 bp

<400> 7
aggagatata ccatgactgc tttacatcaa gcagtaacta gcaaaggaga a   51

<210> 8
<211> 51
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A
     Stem Length 8 bp

<400> 8
aggagatata ccatgactgc acgtgatcgt gcagtaacta gcaaaggaga a   51

<210> 9
<211> 30
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer B

<400> 9
attcgccttt tattaatgat gatgatgatg   30

<210> 10
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A

<400> 10
aggagatata ccatgactag cactgcacgt gcatcgtgca gtgtaaaagg agaagaactt 60

<210> 11
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A

<400> 11
aggagatata ccatgactag caaaactgca cgtgcatcgt gcagtgtagg agaagaactt 60
ttc   63

<210> 12
<211> 66
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A

<400> 12
aggagatata ccatgactag caaaggaact gcacgtgcat cgtgcagtgt agaagaactt 60
ttcact   66

<210> 13
<211> 69
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A

<400> 13
aggagatata ccatgactag caaaggagaa actgcacgtg catcgtgcag tgtagaactt 60
ttcactgga   69

<210> 14
<211> 72
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A

<400> 14
aggagatata ccatgactag caaaggagaa gaaactgcac gtgcatcgtg cagtgtactt 60
ttcactggag tt   72

<210> 15
<211> 75
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A

<400> 15

aggagatata ccatgact████aaggagaa gaacttactg cacgtgcatc gtgcagt████0
ttcactggag ttgtc   75

<210> 16
<211> 71
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer D

<400> 16
caaaaaaccc ctcaagaccc gtttagaggc cccaaggggt tgggagtaga atgttaagga 60
ttagtttatt a   71

<210> 17
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A Variant

<400> 17
aggagatata ccatgaaata tacatattct ctgcacgtga tcgtgcaggc taacaccgcg 60

<210> 18
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A Variant

<400> 18
aggagatata ccatgaaaac atattattct ctgcacgtga tcgtgcaggc taacaccgcg 60

<210> 19
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A Variant

<400> 19
aggagatata ccatgaaata ttcttataca ctgcacgtga tcgtgcaggc taacaccgcg 60

<210> 20
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A Variant

<400> 20
aggagatata ccatgaaata ttattctaca ctgcacgtga tcgtgcaggc taacaccgcg 60

<210> 21
<211> 60
<212> DNA

<213> Artificial Se⬤e

<220>
<223> Description of Artificial Sequence:Primer A Variant

<400> 21
aggagatata ccatgaaata tacatattca ctgcacgtga tcgtgcaggc taacaccgcg 60

<210> 22
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A Variant

<400> 22
aggagatata ccatgaaaac atattattca ctgcacgtga tcgtgcaggc taacaccgcg 60

<210> 23
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A Variant
<400> 23
aggagatata ccatgaaata ttcatataca ctgcacgtga tcgtgcaggc taacaccgcg 60

<210> 24
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A Variant

<400> 24
aggagatata ccatgaaata ttattcaaca ctgcacgtga tcgtgcaggc taacaccgcg 60

<210> 25
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A Variant

<400> 25
aggagatata ccatgcatca tcatcatcat ctgcacgtga tcgtgcaggc taacaccgcg 60

<210> 26
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer Wildtype

<400> 26
aggagatata ccatggctaa caccgcg   27

<210> 27
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer B

<400> 27
aggattagtt tattaatgat gatgatgatg atggcgccgg gtgcgcga   48

<210> 28
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A Variant

<400> 28
aggagatata ccatgaaata tacatattct ctgcacgtga tcgtgcaggg tgccccgacg 60

<210> 29
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A Variant

<400> 29
aggagatata ccatgaaaac atattattct ctgcacgtga tcgtgcaggg tgccccgacg 60

<210> 30
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A Variant

<400> 30
aggagatata ccatgaaata ttcttataca ctgcacgtga tcgtgcaggg tgccccgacg 60

<210> 31
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A Variant

<400> 31
aggagatata ccatgaaata ttattctaca ctgcacgtga tcgtgcaggg tgccccgacg 60

<210> 32
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A Variant

<400> 32
aggagatata ccatgaaata tacatattca ctgcacgtga tcgtgcaggg tgccccgacg 60

<210> 33
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A Variant

<400> 33
aggagatata ccatgaaaac atattattca ctgcacgtga tcgtgcaggg tgccccgacg 60

<210> 34
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A Variant

<400> 34
aggagatata ccatgaaata ttcatataca ctgcacgtga tcgtgcaggg tgccccgacg 60

<210> 35
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A Variant

<400> 35
aggagatata ccatgaaata ttattcaaca ctgcacgtga tcgtgcaggg tgccccgacg 60

<210> 36
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A Variant

<400> 36
aggagatata ccatgcatca tcatcatcat ctgcacgtga tcgtgcaggg tgccccgacg 60

<210> 37
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A
      Wildtype

<400> 37
aggagatata ccatgggtgc cccgacg   27

<210> 38
<211> 49
<212> DNA

<213> Artificial Se●●e

<220>
<223> Description of Artificial Sequence:Primer B

<400> 38
aggattagtt tattaatgat gatgatgatg atgatccatg gcagccagc   49

<210> 39
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer

<400> 39
aggagatata ccatgaaata tacatattct ctgcacgtga tcgtgcagga gttggggccc 60

<210> 40
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer

<400> 40
aggagatata ccatgaaaac atattattct ctgcacgtga tcgtgcagga gttggggccc 60

<210> 41
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer

<400> 41
aggagatata ccatgaaata ttcttataca ctgcacgtga tcgtgcagga gttggggccc 60

<210> 42
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer

<400> 42
aggagatata ccatgaaata ttattctaca ctgcacgtga tcgtgcagga gttggggccc 60

<210> 43
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer

<400> 43
aggagatata ccatgaaata tacatattca ctgcacgtga tcgtgcagga gttggggccc 60

```
<210> 44
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer

<400> 44
aggagatata ccatgaaaac atattattca ctgcacgtga tcgtgcagga gttggggccc 60


<210> 45
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer

<400> 45
aggagatata ccatgaaata ttcatataca ctgcacgtga tcgtgcagga gttggggccc 60


<210> 46
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer

<400> 46
aggagatata ccatgaaata ttattcaaca ctgcacgtga tcgtgcagga gttggggccc 60



<210> 47
<211> 60
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer

<400> 47
aggagatata ccatgcatca tcatcatcat ctgcacgtga tcgtgcagga gttggggccc 60



<210> 48
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:Primer A
      Wildtype

<400> 48
aggagatata ccatggagtt ggggccc                                       27



<210> 49
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
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<223> Description of ▉ificial Sequence:Primer B

<400> 49
aggattagtt tattattaat gatgatgatg atgatgagaa ccccc   45

<210> 50
<211> 431
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:
      Expression construct for mutant 1

<400> 50
gaaattaata cgactcacta tagggagacc acaacggttt ccctctagaa ataattttgt 60
ttaactttaa gaaggagata taccatgaaa tatacatatt ctctgcacgt gatcgtgcag 120
gctaacaccg cgccgggacc cacggtggcc aacaagcggg acgaaaaaca ccgtcacgtc 180
gttaacgtcg ttttggagct gccgaccgag atatcagagg ccacccaccc ggtgttggcc 240
accatgctga gcaagtacac gcgcatgtcc agcctgttta atgacaagtg cgcctttaag 300
ctggacctgt tgcgcatggt agccgtgtcg cgcaccggc gccatcatca tcatcatcat 360
taataaacta atccttaaca ttctactccc aaccccttgg ggcctctaaa cgggtcttga 420
ggggtttttt g   431

<210> 51
<211> 398
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:
      Expression construct for wildtype

<400> 51
gaaattaata cgactcacta tagggagacc acaacggttt ccctctagaa ataattttgt 60
ttaactttaa gaaggagata taccatggct aacaccgcgc cgggacccac ggtggccaac 120
aagcgggacg aaaaacaccg tcacgtcgtt aacgtcgttt tggagctgcc gaccgagata 180
tcagaggcca cccacccggt gttggccacc atgctgagca agtacacgcg catgtccagc 240
ctgtttaatg acaagtgcgc ctttaagctg gacctgttgc gcatggtagc cgtgtcgcgc 300
acccggcgcc atcatcatca tcatcattaa taaactaatc cttaacattc tactcccaac 360
cccttggggc ctctaaacgg gtcttgaggg gttttttg   398

<210> 52
<211> 632
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:
      Expresion construct for mutant 1

<400> 52
gaaattaata cgactcacta tagggagacc acaacggttt ccctctagaa ataattttgt 60
ttaactttaa gaaggagata taccatgaaa tatacatatt ctctgcacgt gatcgtgcag 120
ggtgccccga cgttgccccc tgcctggcag ccctttctca aggaccaccg catctctaca 180
ttcaagaact ggcccttctt ggagggctgc gcctgcaccc cggagcggat ggccgaggct 240
ggcttcatcc actgccccac tgagaacgag ccagacttgg cccagtgttt cttctgcttc 300
aaggagctgg aaggctggga gccagatgac gaccccatag aggaacataa aaagcattcg 360
tccggttgcg ctttcctttc tgtcaagaag cagtttgaag aattaaccct tggtgaattt 420
ttgaaactgg acagagaaag agccaagaac aaaattgcaa aggaaaccaa caataagaag 480
aaagaatttg aggaaactgc gaagaaagtg cgccgtgcca tcgagcagct ggctgccatg 540
gatcatcatc atcatcatca ttaataaaact aatccttaac attctactcc caaccccttg 600
gggcctctaa acgggtcttg aggggttttt tg   632

<210> 53
<211> 599
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:
        Expression construct for Wildtype

<400> 53
gaaattaata cgactcacta tagggagacc acaacggttt ccctctagaa ataattttgt 60
ttaactttaa gaaggagata taccatgggt gccccgacgt tgccccctgc ctggcagccc 120
tttctcaagg accaccgcat ctctacattc aagaactggc ccttcttgga gggctgcgcc 180
tgcaccccgg agcggatggc cgaggctggc ttcatccact gccccactga gaacgagcca 240
gacttggccc agtgtttctt ctgcttcaag gagctggaag gctgggagcc agatgacgac 300
cccatagagg aacataaaaa gcattcgtcc ggttcggctt tcctttctgt caagaagcag 360
tttgaagaat taacccttgg tgaatttttg aaactggaca gagaaagagc caagaacaaa 420 .
attgcaaagg aaaccaacaa taagaagaaa gaatttgagg aaactgcgaa gaaagtgcgc 480
cgtgccatcg agcagctggc tgccatggat catcatcatc atcatcatta ataaactaat 540
ccttaacatt ctactcccaa ccccttgggg cctctaaacg ggtcttgagg ggttttttg 599

<210> 54
<211> 1400
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:
        Expression construct for mutant 1

<400> 54
gaaattaata cgactcacta tagggagacc acaacggttt ccctctagaa ataattttgt 60
ttaactttaa gaaggagata taccatgaaa tatacatatt ctctgcacgt gatcgtgcag 120
gagttggggc ccctagaagg tggctacctg gagcttctta acagcgatgc tgaccccctg 180
tgcctctacc acttctatga ccagatggac ctggctggag aagaagagat tgagctctac 240
tcagaacccg acacagacac catcaactgc gaccagttca gcaggctgtt gtgtgacatg 300
gaaggtgatg aagagaccag ggaggcttat gccaatatcg cggaactgga ccagtatgtc 360
ttccaggact cccagctgga gggcctgagc aaggacattt caagcacat aggaccagat 420
gaagtgatcg gtgagagtat ggagatgcca gcagaagttg ggcagaaaag tcagaaaaga 480
cccttcccag aggagcttcc ggcagacctg aagcactgga agccagctga gccccccact 540
gtggtgactg gcagtctcct agtgggacca gtgagcgact gctccaccct gccctgcctg 600
ccactgcctg cgctgttcaa ccaggagcca gcctccggcc agatgcgcct ggagaaaacc 660
gaccagattc ccatgccttt ctccagttcc tcgttgagct gcctgaatct ccctgaggga 720
cccatccagt ttgtccccac catctccact ctgccccatg ggctctggca aatctctgag 780
gctggaacag gggtctccag tatattcatc taccatggtg aggtgcccca ggccagccaa 840
gtaccccctc ccagtggatt cactgtccac ggcctcccaa catctccaga ccggccaggc 900
tccaccagcc ccttcgctcc atcagccact gacctgccca gcatgcctga acctgccctg 960
acctcccgag caaacatgac agagcacaag acgtcccca cccaatgccc ggcagctgga 1020
gaggtctcca acaagcttcc aaaatggcct gagccggtgg agcagttcta ccgctcactg 1080
caggacacgt atggtgccga gcccgcaggc ccggatggca tcctagtgga ggtggatctg 1140
gtgcaggcca ggctgggagag gagcagcagc aagagcctgg acggggaact ggccaccccg 1200
gactgggcag aacggcagct ggcccaagga ggcctggctg aggtgctgtt ggctgccaag 1260
gagcaccggc ggccgcgtcg actcgagcga gctcccgggg ggggttctca tcatcatcat 1320
catcattaat aataaactaa tccttaacat tctactccca acccccttggg gcctctaaac 1380
gggtcttgag gggttttttg   1400

<210> 55
<211> 1367
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:
        Expression construct for wildtype

<400> 55

```
gaaattaata cgactcac●      ●gggagacc acaacggttt ccctctagaa ataattt●  ●0
ttaactttaa gaaggaga●  ●accatggag ttggggcccc tagaaggtgg ctacctggag 120
cttcttaaca gcgatgctga cccctgtgc ctctaccact tctatgacca gatggacctg 180
gctggagaag aagagattga gctctactca gaacccgaca cagacaccat caactgcgac 240
cagttcagca ggctgttgtg tgacatggaa ggtgatgaag agaccaggga ggcttatgcc 300
aatatcgcgg aactggacca gtatgtcttc caggactccc agctggaggg cctgagcaag 360
gacattttca agcacatagg accagatgaa gtgatcggtg agagtatgga gatgccagca 420
gaagttgggc agaaaagtca gaaaagaccc ttcccagagg agcttccggc agacctgaag 480
cactggaagc cagctgagcc ccccactgtg gtgactggca gtctcctagt gggaccagtg 540
agcgactgct ccaccctgcc ctgcctgcca ctgcctgcgc tgttcaacca ggagccagcc 600
tccggccaga tgcgcctgga gaaaaccgac cagattccca tgcctttctc cagttcctcg 660
ttgagctgcc tgaatctccc tgagggaccc atccagtttg tccccaccat ctccactctg 720
ccccatgggc tctggcaaat ctctgaggct ggaacagggg tctccagtat attcatctac 780
catggtgagg tgccccaggc cagccaagta ccccctccca gtggattcac tgtccacggc 840
ctcccaacat ctccagaccg gccaggctcc accagcccct tcgctccatc agccactgac 900
ctgcccagca tgcctgaacc tgccctgacc tcccgagcaa acatgacaga gcacaagacg 960
tcccccaccc aatgcccggc agctggagag gtctccaaca agcttccaaa atggcctgag 1020
ccggtggagc agttctaccg ctcactgcag gacacgtatg gtgccgagcc cgcaggcccg 1080
gatggcatcc tagtggaggt ggatctggtg caggccaggc tggagaggag cagcagcaag 1140
agcctggagc gggaactggc caccccggac tgggcagaac ggcagctggc ccaaggaggc 1200·
ctggctgagg tgctgttggc tgccaaggag caccggcggc cgcgtcgact cgagcgagct 1260
cccgggggggg gttctcatca tcatcatcat cattaataat aaactaatcc ttaacattct 1320
actcccaacc ccttggggcc tctaaacggg tcttgagggg tttttg          1367
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<210> 56
<211> 938
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial
      Sequence:Expression construct

<400> 56
gaaattaata cgactcacta tagggagacc acaacggttt ccctctagaa ataattttgt 60
ttaactttaa gaaggagata taccatgaaa tatacatatt ctctgcacgt gatcgtgcag 120
actagcaaag gagaagaact tttcactgga gttgtcccaa ttcttgttga attagatggt 180
gatgttaatg ggcacaaatt ttctgtcagt ggagagggtg aaggtgatgc tacatacgga 240
aagcttaccc ttaaatttat ttgcactact ggaaaactac ctgttccatg gccaacactt 300
gtcactactt tctcttatgg tgttcaatgc ttttcccgtt atccggatca tatgaaacgg 360
catgactttt tcaagagtgc catgcccgaa ggttatgtac aggaacgcac tatatctttc 420
aaagatgacg ggaactacaa gacgcgtgct gaagtcaagt ttgaaggtga tacccttgtt 480
aatcgtatcg agttaaaagg tattgatttt aaagaagatg gaaacattct cggacacaaa 540
ctcgagtaca actataactc acacaatgta tacatcacgg cagacaaaca aaagaatgga 600
atcaaagcta acttcaaaat tcgccacaac attgaagatg gatccgttca actagcagac 660
cattatcaac aaaatactcc aattggcgat ggccctgtcc ttttaccaga caaccattac 720
ctgtcgacac aatctgccct ttcgaaagat cccaacgaaa agagagacca catggtcctt 780
cttgagtttg taacagctgc tgggattaca catggcatgg atgaactata caaacccggg 840
ggggttctc atcatcatca tcatcattaa taaactaatc cttaacattc tactcccaac 900
cccttggggc ctctaaacgg gtcttgaggg gttttttg          938
```

```
<210> 57
<211> 905
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence:
      Expression construct

<400> 57
gaaattaata cgactcacta tagggagacc acaacggttt ccctctagaa ataattttgt 60
ttaactttaa gaaggagata taccatgact agcaaaggag aagaacttt cactggagtt 120
gtcccaattc ttgttgaatt agatggtgat gttaatgggc acaaattttc tgtcagtgga 180
gagggtgaag tgatgctac atacggaaag cttacccta aatttatttg cactactgga 240
aaactacctg ttccatggcc aacacttgtc actactttct cttatggtgt tcaatgcttt 300
```

```
tcccgttatc cggatcat    aacggcat gactttttca agagtgccat gcccgaa     60
tatgtacagg aacgcact    cctttcaaa gatgacggga actacaagac gcgtgctgaa 420
gtcaagtttg aaggtgatac ccttgttaat cgtatcgagt taaaaggtat tgattttaaa 480
gaagatggaa acattctcgg acacaaactc gagtacaact ataactcaca caatgtatac 540
atcacggcag acaaacaaaa gaatggaatc aaagctaact tcaaaattcg ccacaacatt 600
gaagatggat ccgttcaact agcagaccat tatcaacaaa atactccaat tggcgatggc 660
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ttttg                                                         905
```